

## Met briefing, AM 041101

### Yesterday's flight

The first plot shows a visible satellite picture (resolution 1 km), and the second the forecast relative humidity at 850 mb. The forecast RH shows higher values near the south end than the north end of the Aura track, and the visible image indicates more cloudiness near the north end. Brian and Andy reported cloud coverage of 20-35%. Based on the satellite picture, TES should have been able to find its 5 by 8 km clear spot. A reliable clear region is downstream of the Yucatan peninsula (forecast accurately by the Eta model – not shown). In any case, that clear zone was very narrow and close to Mexico under the Aura track.

### Overall Weather Outlook

The forecast has changed substantially since yesterday's briefing in two fundamental ways. First, the severity of the rainfall expected today has increased, and a flash flood advisory has been issued for this area. Secondly, the forecast progression of the major 500 mb trough west of us has slowed relative to previous model runs. This means that the cold front will not pass through until tomorrow, and we should expect a second session of thunderstorms and showers on that day. How long the chance of thunderstorms will continue tomorrow is not something the various forecasters agree upon, but based on progressive slowing of the models and various predicted severity indices (precipitable water, lifted index), my own forecast is that the chance of thunderstorms, especially in the morning, is greater than 50%. The Houston office expects rain probabilities of 80% tomorrow. In any case, there is good agreement between the various models on the overall position of the trough for tomorrow. By late Tuesday the rain will have stopped, leading to partly cloudy skies on Wednesday with colder temperatures and northwest winds. These winds are significant (15 knots) but essentially down the runway. The longer range outlook is for mostly clear and cool weather for the rest of the week.

### Science implications.

The third, fourth and fifth plots show predicted cloud fields and the 500 mb circulation for Wednesday, Thursday, and Friday. Thursday does not look good for Aura overpasses, so we will focus on Wednesday and Friday. Comparison of various models indicates that we have an excellent chance of reaching both clear and cloudy air as we go north along the Aura flight track. The cloud is mostly low and boundary layer cloud (as shown by the last three plots of low, middle, and high cloud). Note the presence of the tropopause at 500 mb just to the right of the Aura track. In fact, this feature is moving rapidly eastward at this time (both Euro and GFS models have this trough in about the same place at this time, lending credibility to the forecast). Thus, we can expect fairly interesting structures as we go along the Aura track. This is the same significant strat-trop exchange event we expected to be near us on Tuesday in previous forecasts (!!)

Friday presents good opportunities for clear skies over land and cloudy (low cloud) over water in the Gulf. The tropopause will still have structure along the Aura track as we go

north from Houston, but the altitude variations will be much less severe, with only a minor fold at about 35N getting down to about 250 mb.

GOES-12 0410311932

19:20

19:19

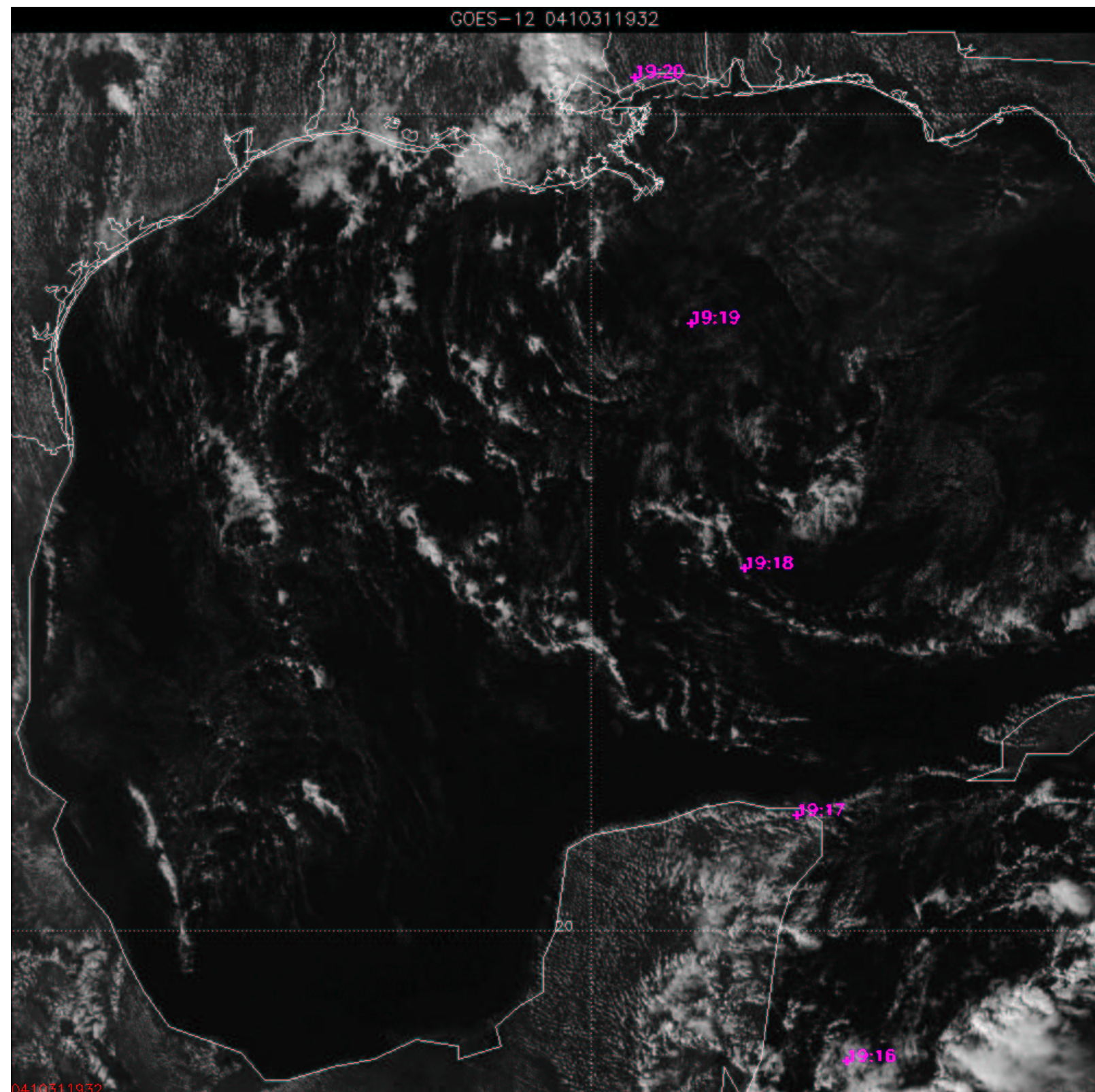
19:18

19:17

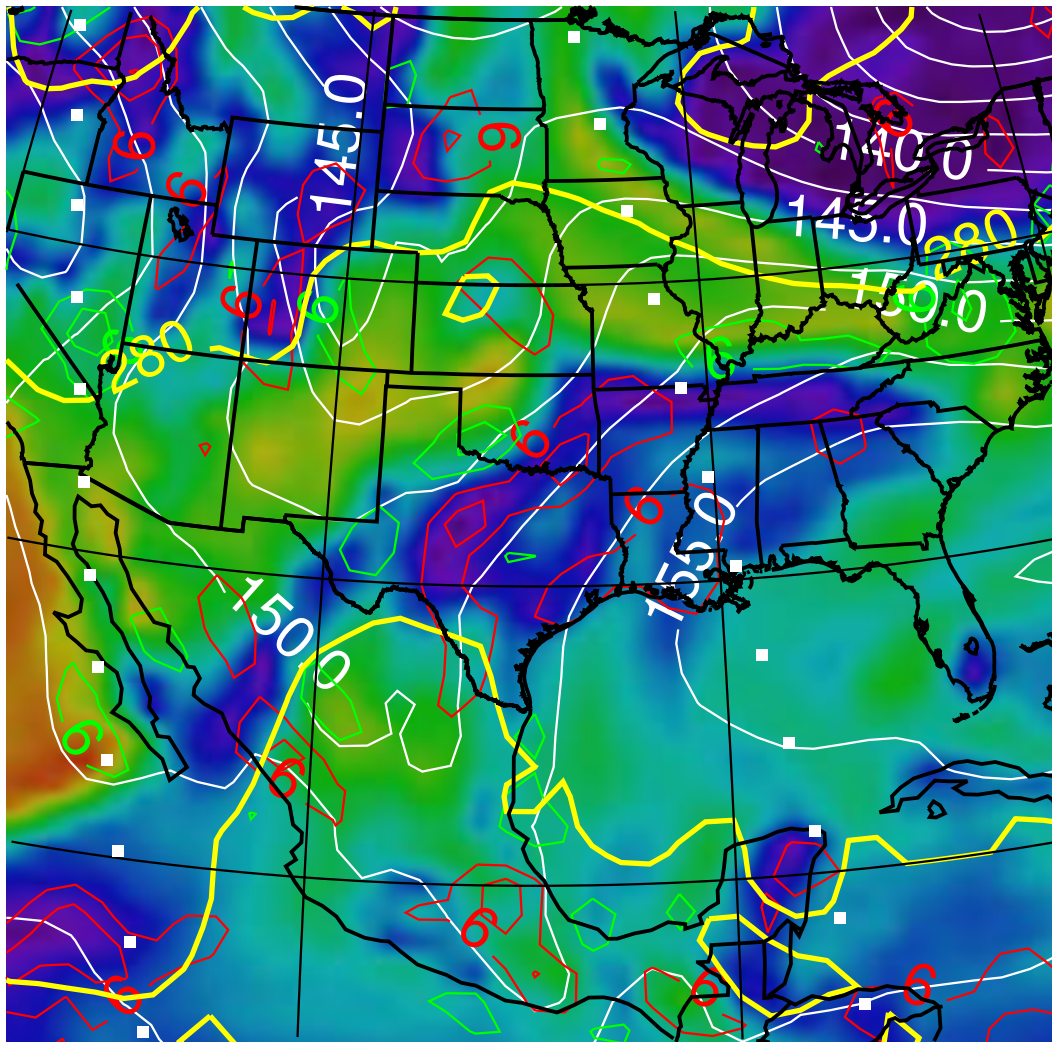
19:16

20

0410311932



18 UTC on 31 October, 2004 at 850.0 mb

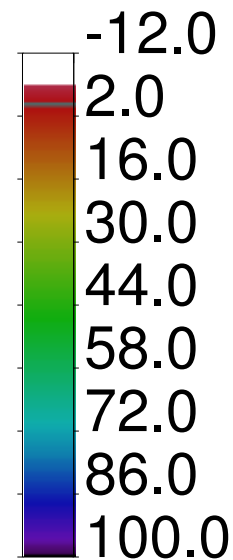


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

18 hr fost

RH at 850 MB (%)



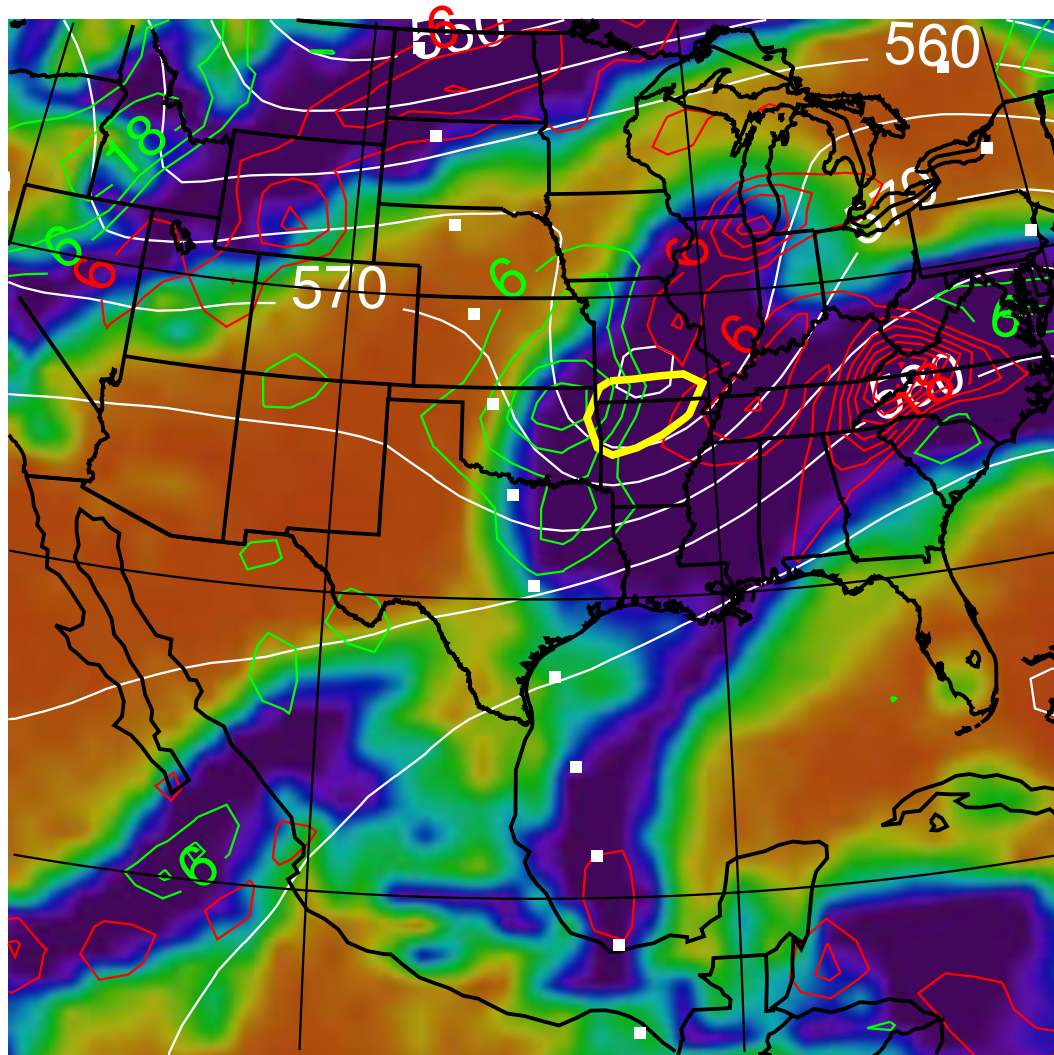
Z (dam)

Ascent (6 mb/hr)

Descent (6 mb/hr)

T (K)

00 UTC on 4 November, 2004 at 500.0 mb

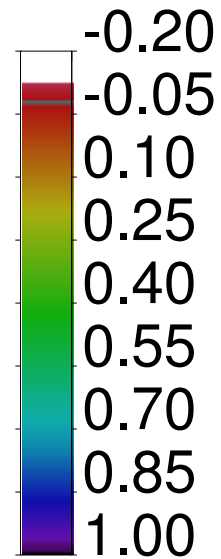


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

72 hr fcst

Total CF ( )



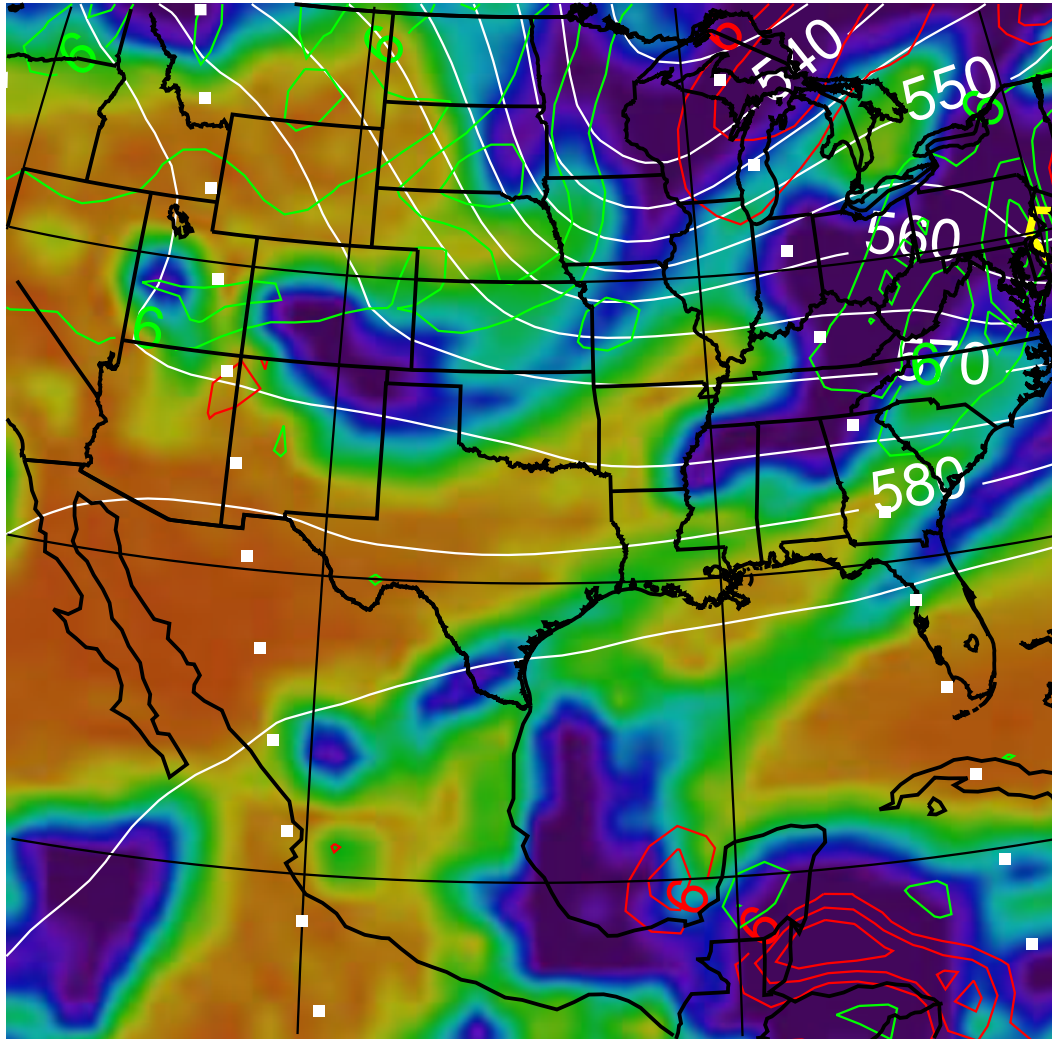
Z (dam)

Ascent (6 mb/hr)

Descent (6 mb/hr)

Trop (EPV=2.5)

00 UTC on 5 November, 2004 at 500.0 mb

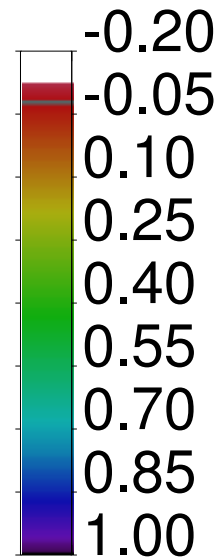


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

96 hr fcst

Total CF ( )



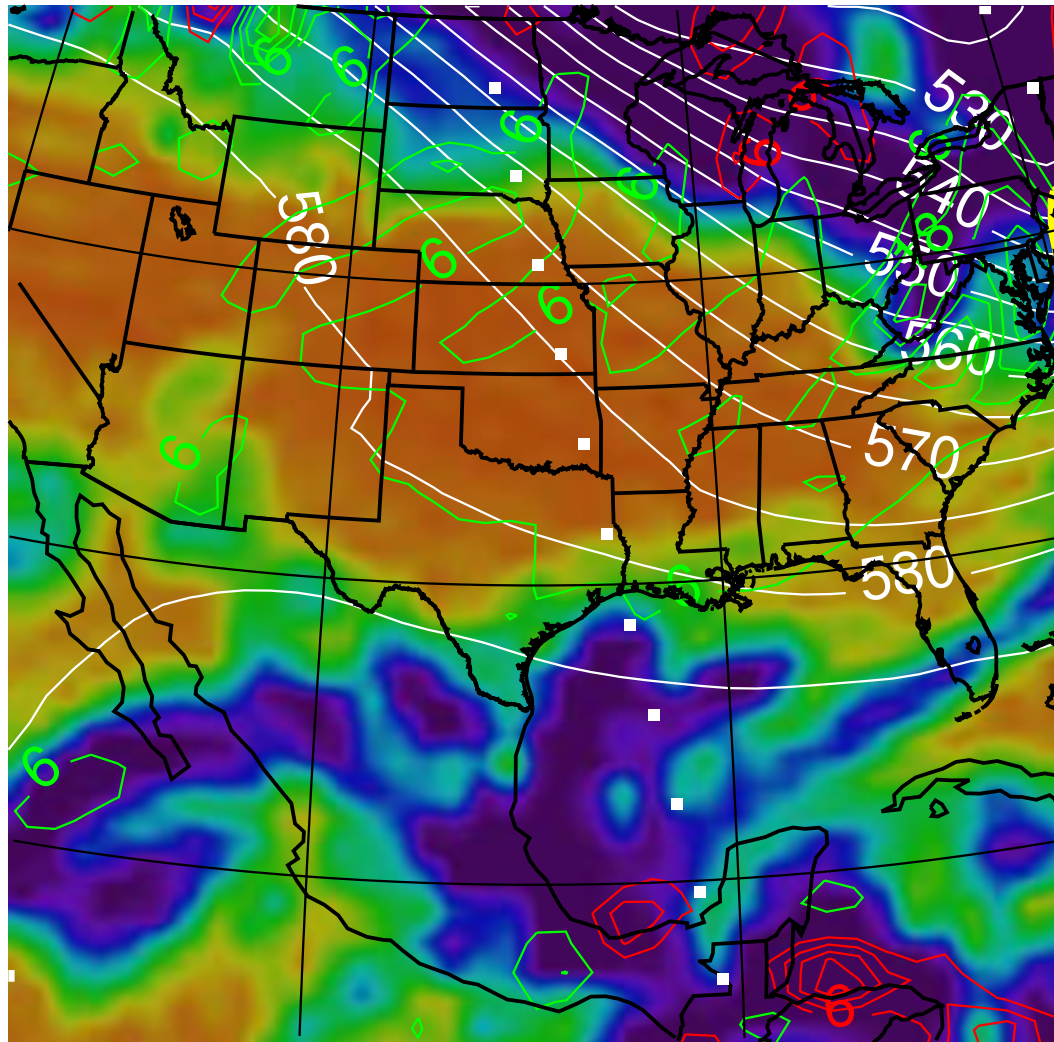
Z (dam)

Ascent (6 mb/hr)

Descent (6 mb/hr)

Trop (EPV=2.5)

00 UTC on 6 November, 2004 at 500.0 mb

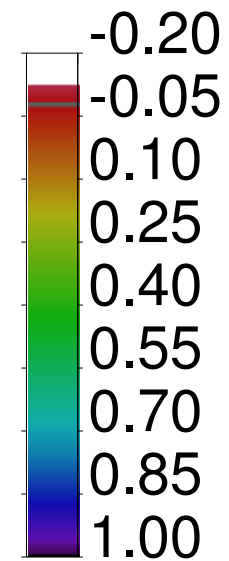


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

120 hr fcst

Total CF ( )



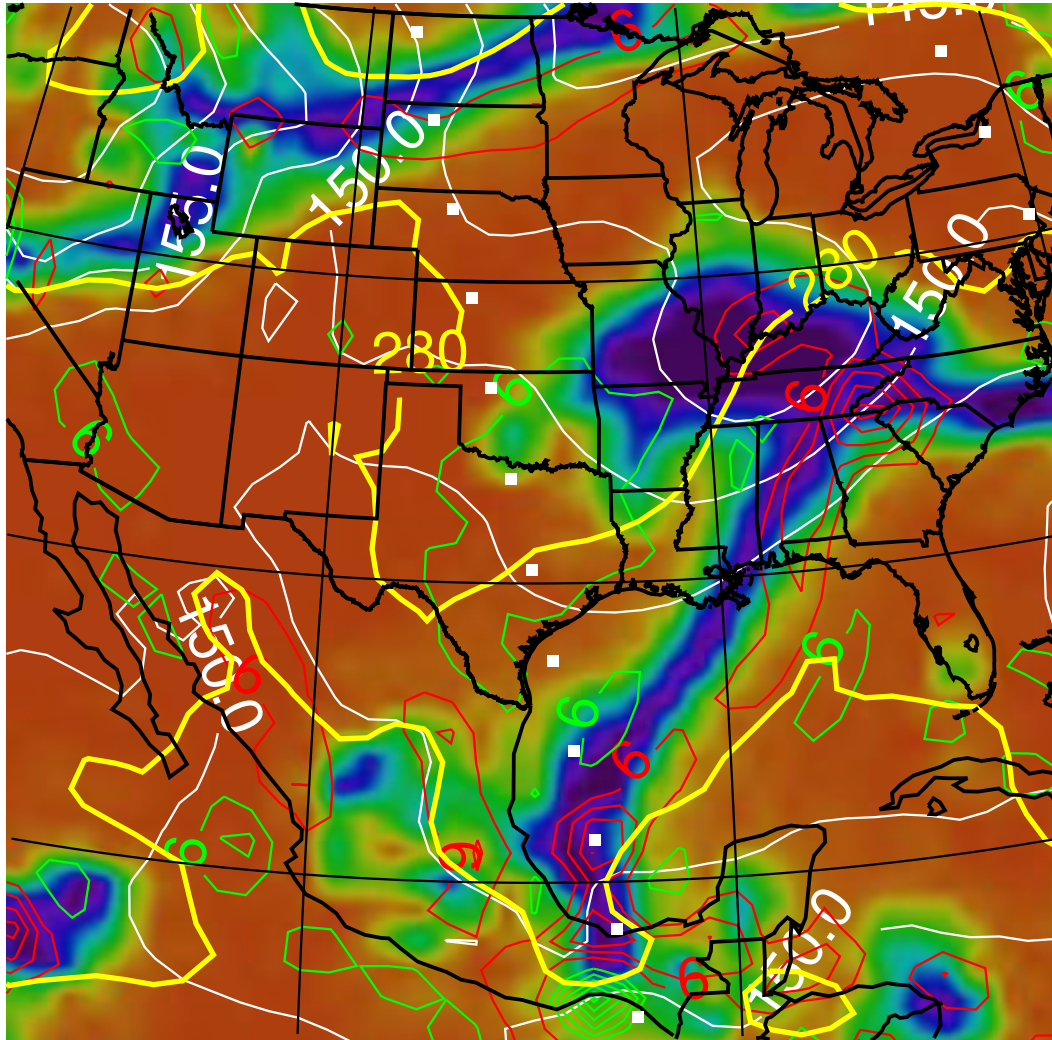
Z (dam)

Ascent (6 mb/hr)

Descent (6 mb/hr)

Trop (EPV=2.5)

00 UTC on 4 November, 2004 at 850.0 mb

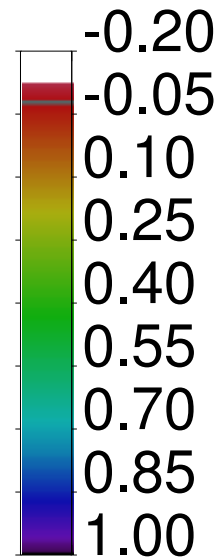


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

72 hr fost

Low CF ( )



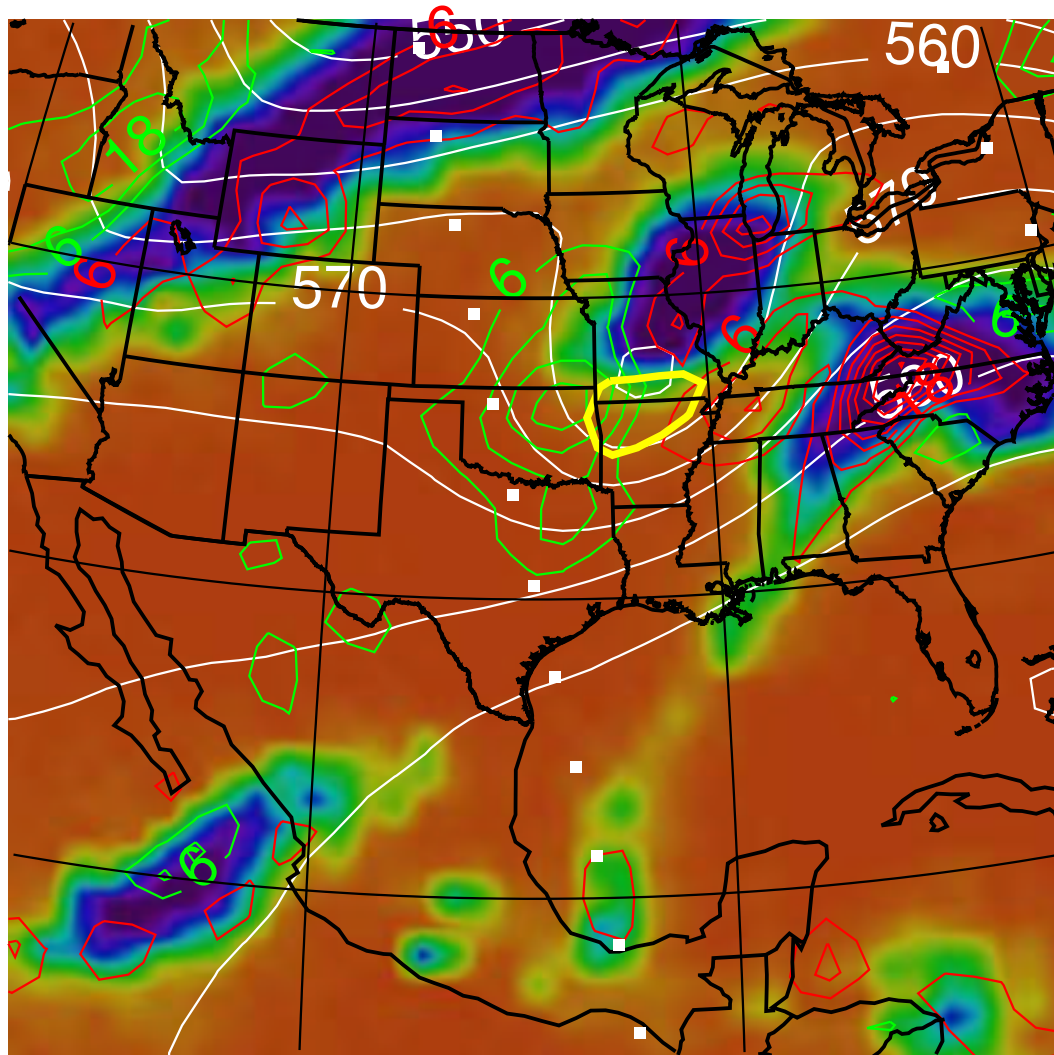
Z (dam)

Ascent (6 mb/hr)

Descent (6 mb/hr)

T (K)

00 UTC on 4 November, 2004 at 500.0 mb

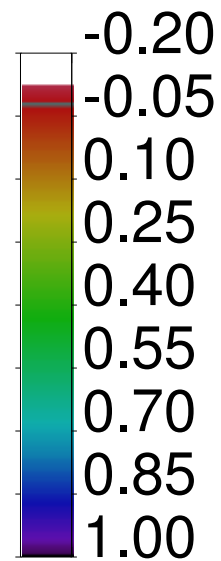


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

72 hr fost

Middle CF ( )



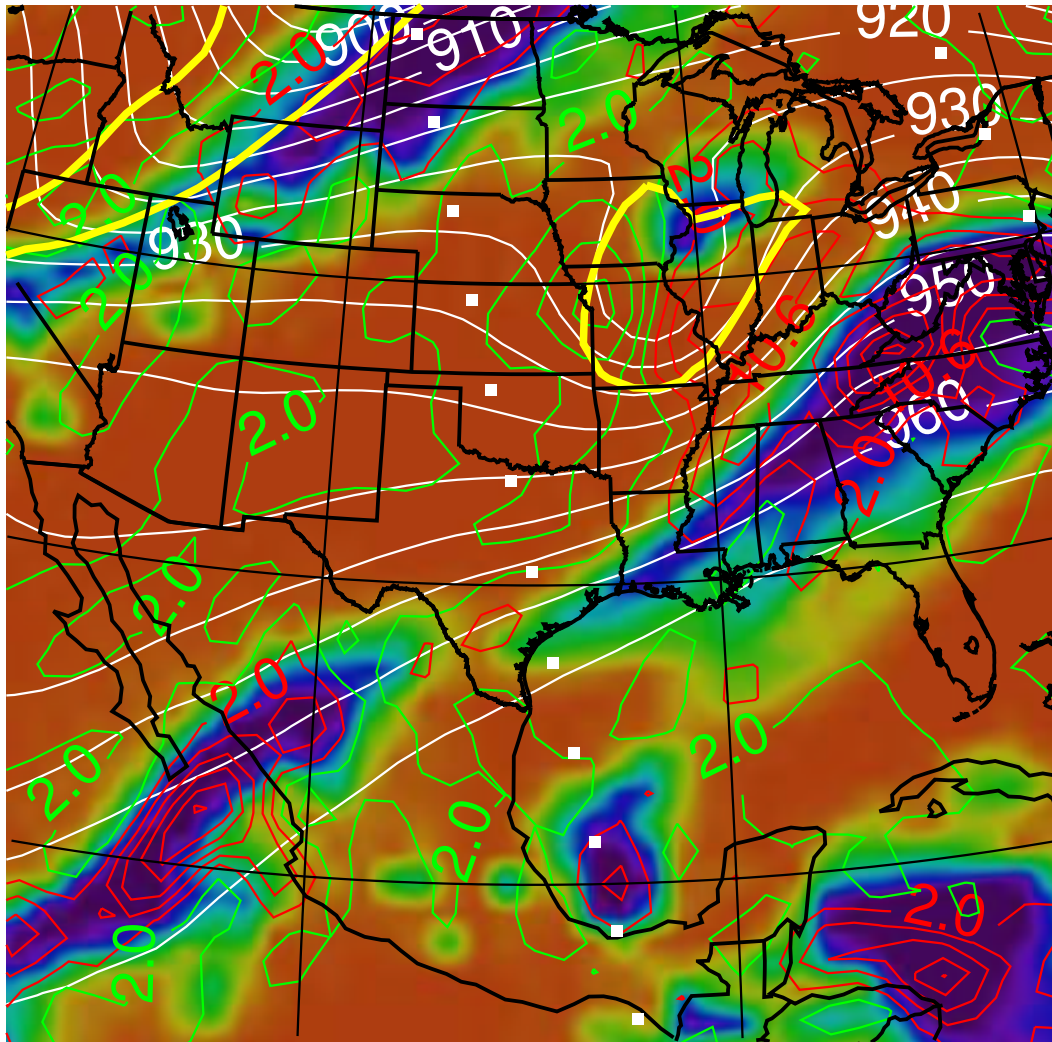
Z (dam)

Ascent (6 mb/hr)

Descent (6 mb/hr)

Trop (EPV=2.5)

00 UTC on 4 November, 2004 at 300.0 mb

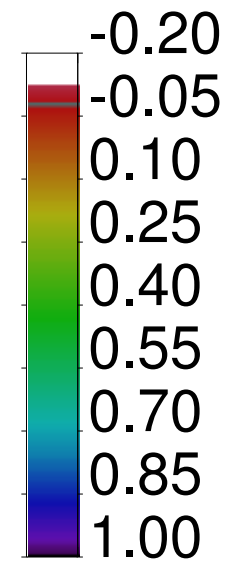


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

72 hr fost

High CF ( )



Z (dam)

Ascent (4 mb/hr)

Descent (4 mb/hr)

Trop (EPV=2.5)